



Inventor: Robert A. Estes et al.  
 Title: Measurement-While-Drilling Assembly Using Real-Time Toolface .....  
 Serial No.: 10/771,675; Filed: February 4, 2004; Confirmation No.: 4037  
 Docket No.: 414-29494-USCP; REPLACEMENT SHEET

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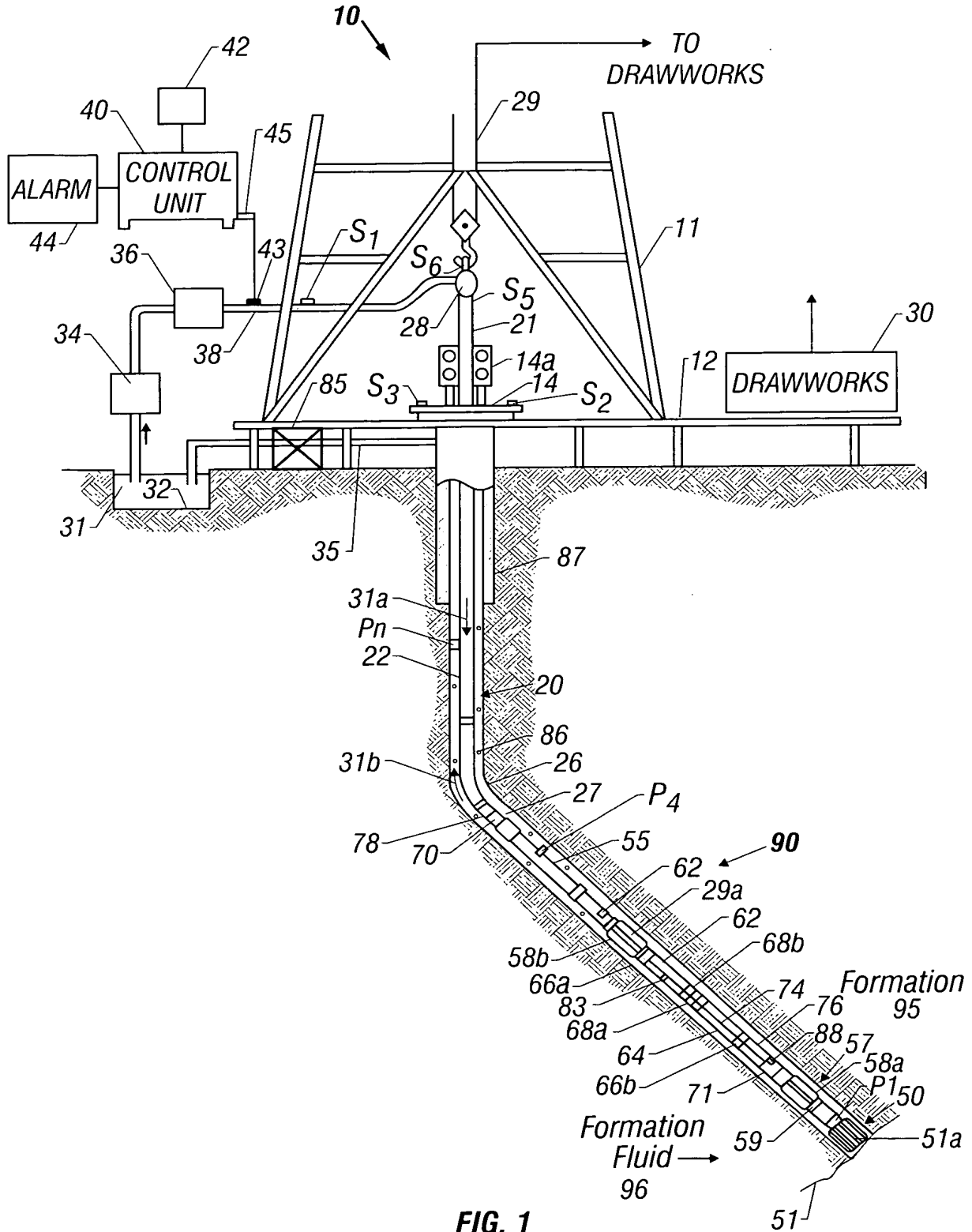
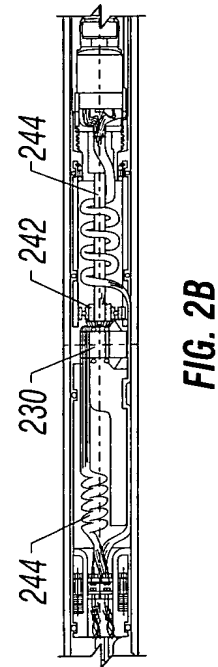
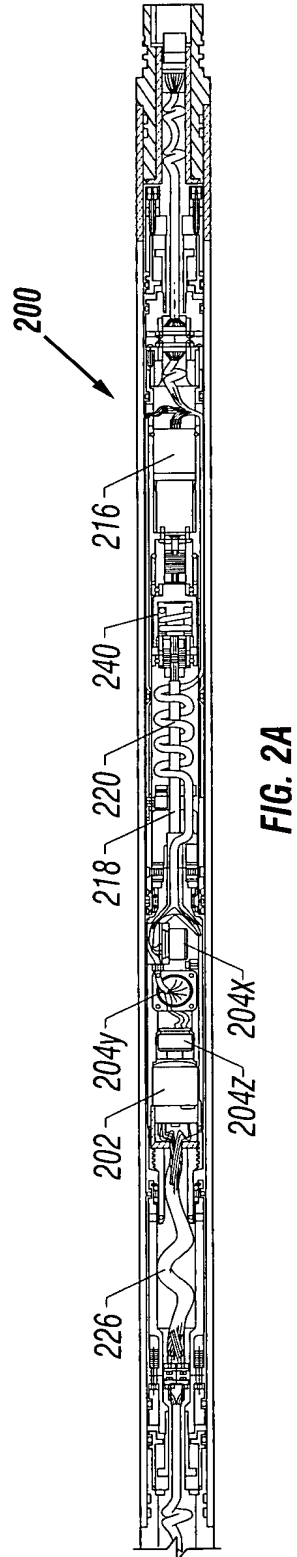


FIG. 1

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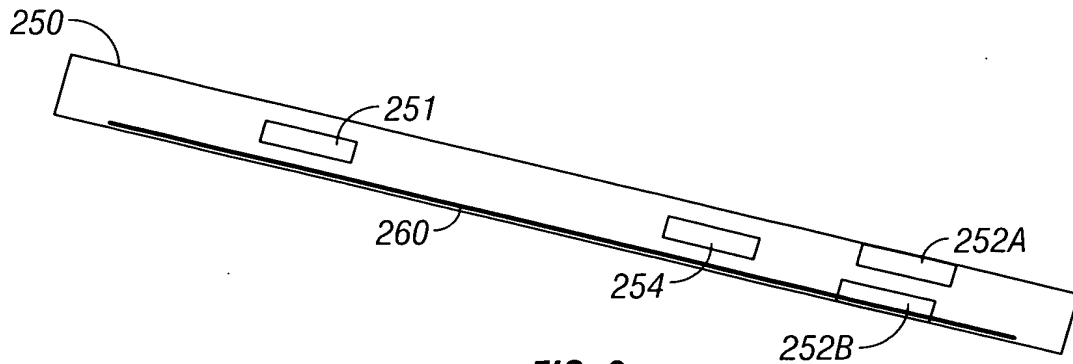


FIG. 3

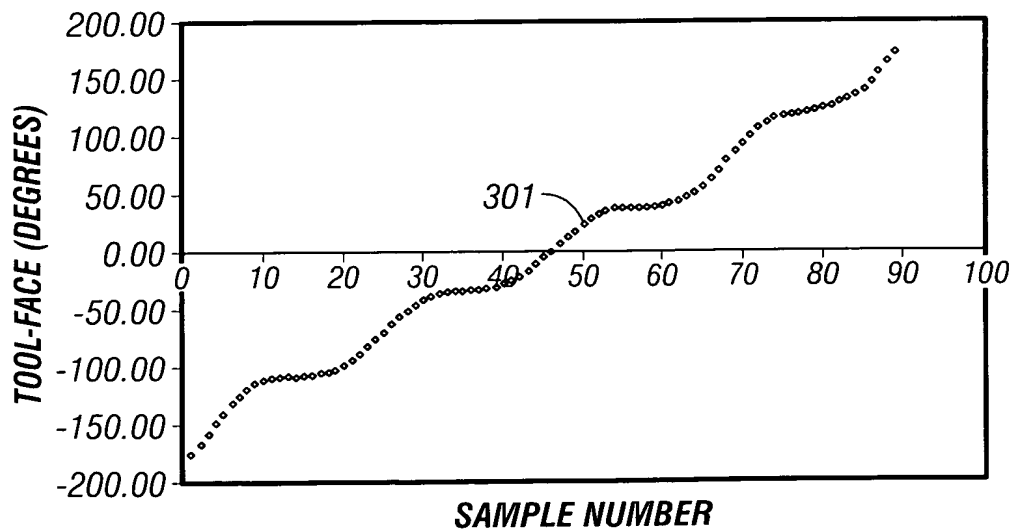


FIG. 4

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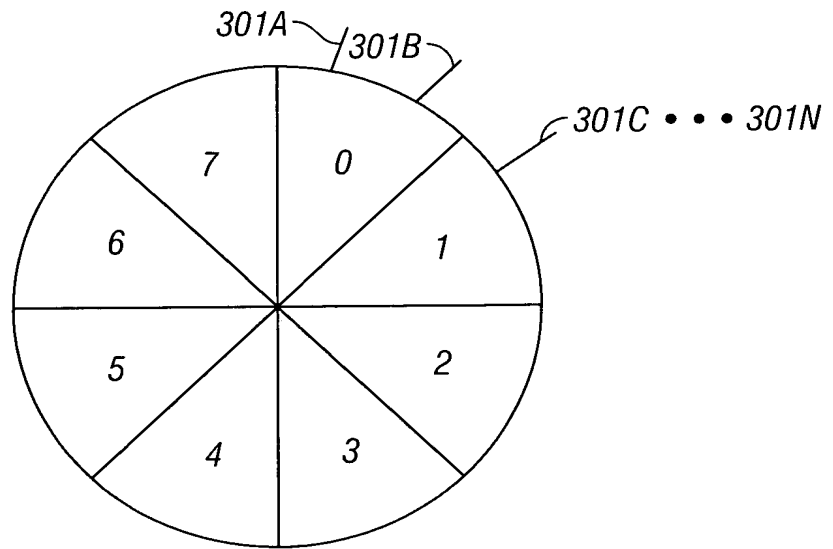


FIG. 5

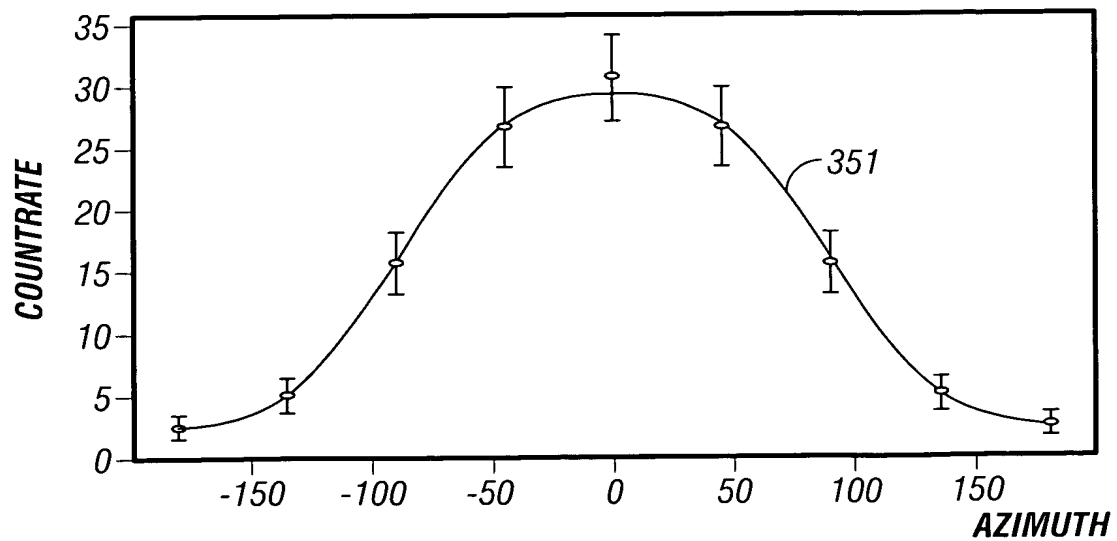


FIG. 6

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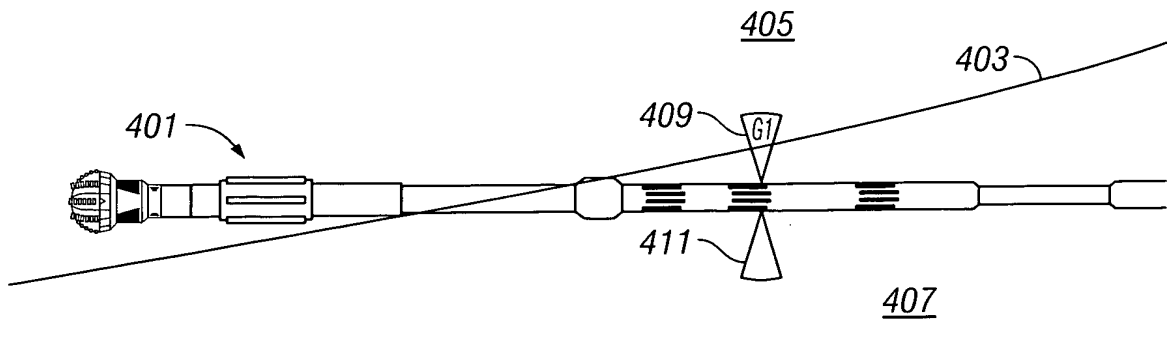


FIG. 7

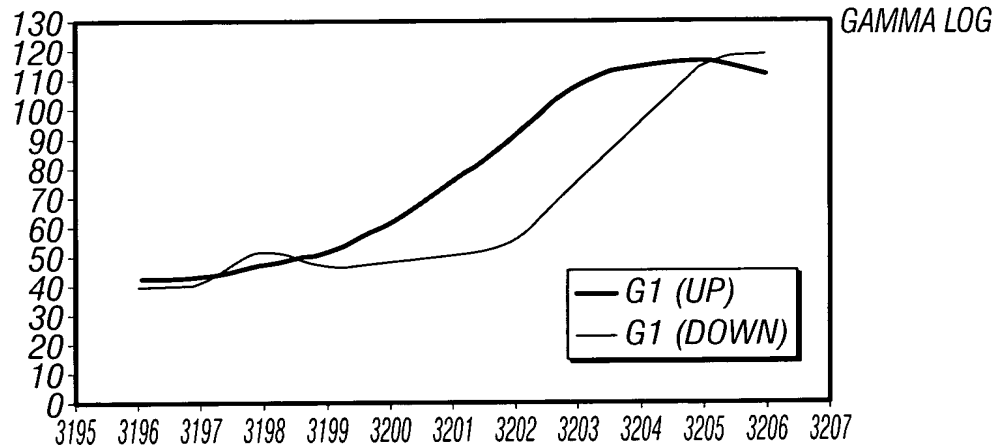


FIG. 8

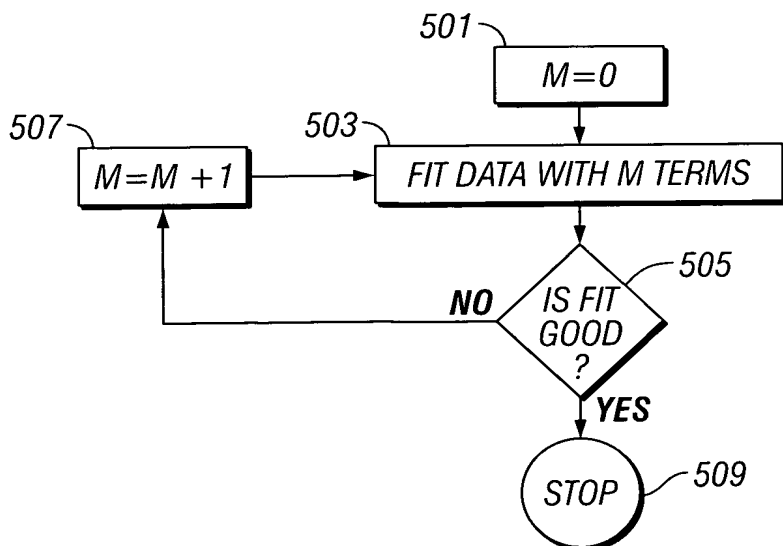


FIG. 9

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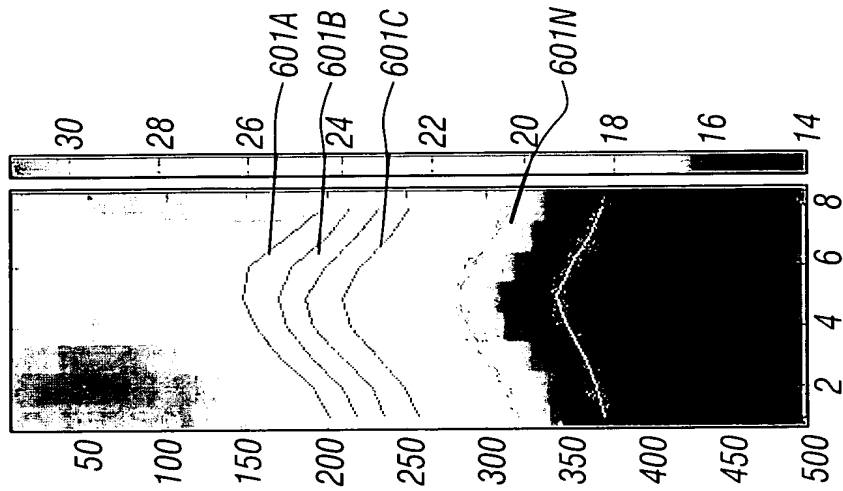


FIG. 10B

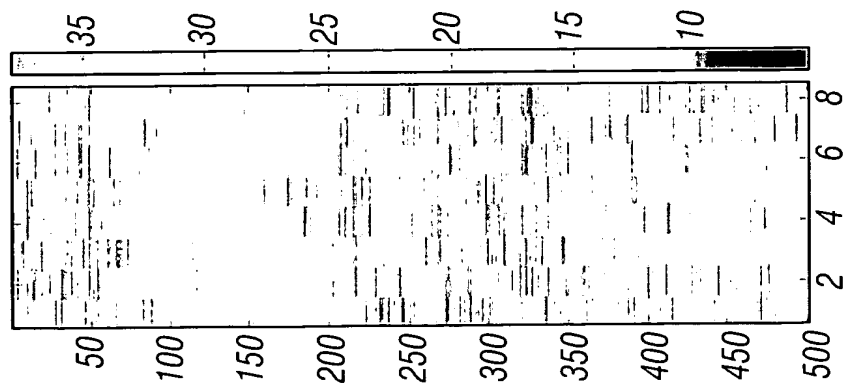


FIG. 10A

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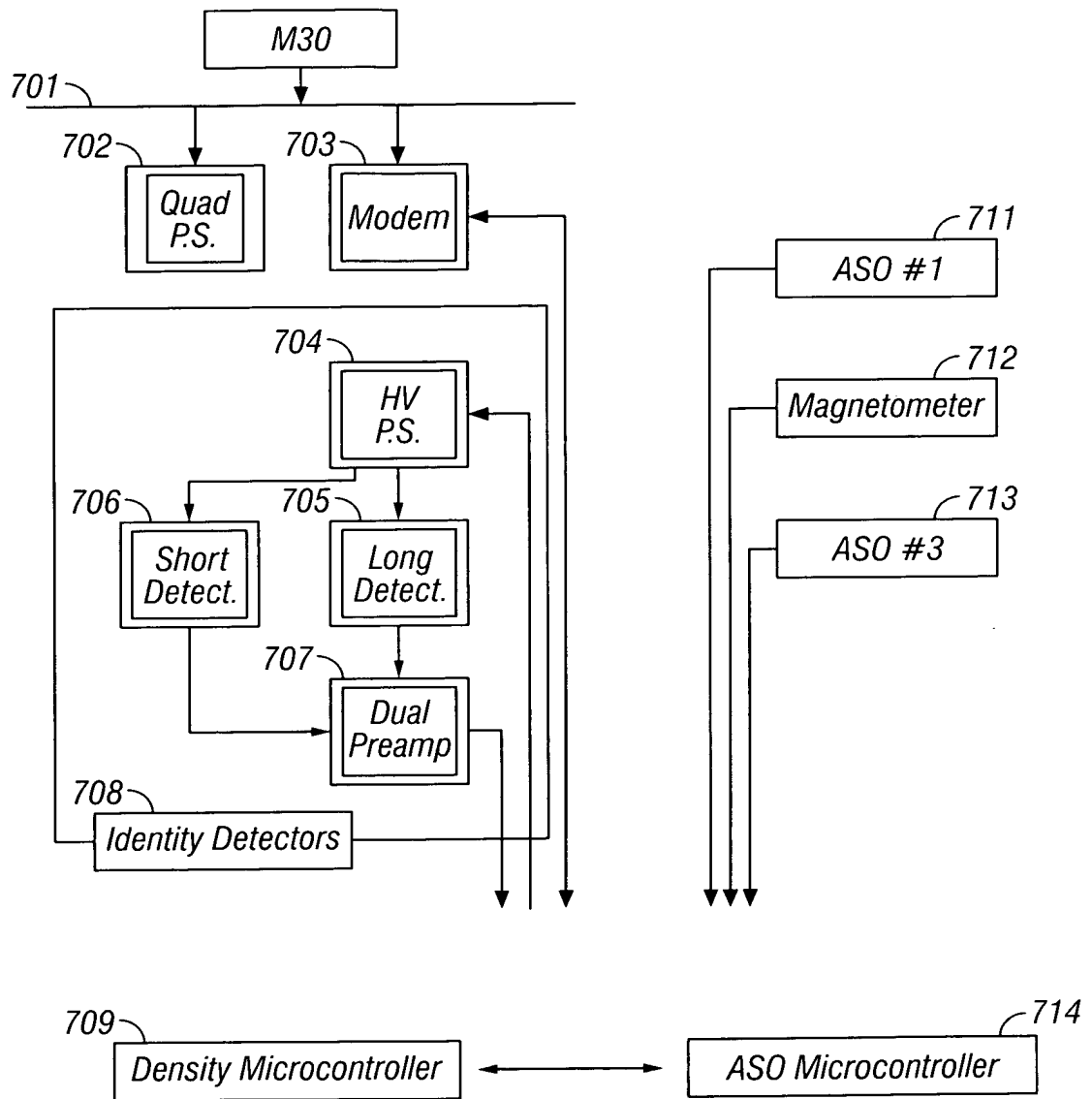


FIG. 11

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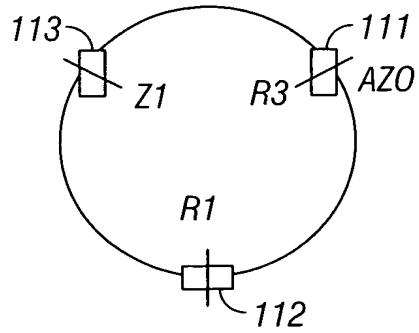


FIG. 12

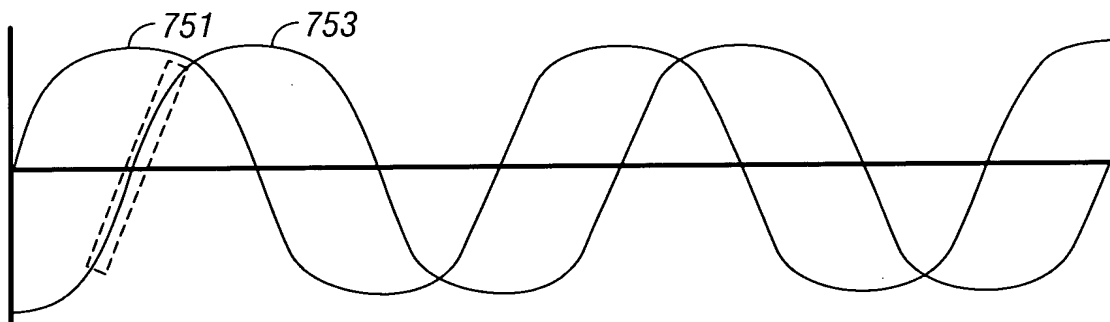


FIG. 13



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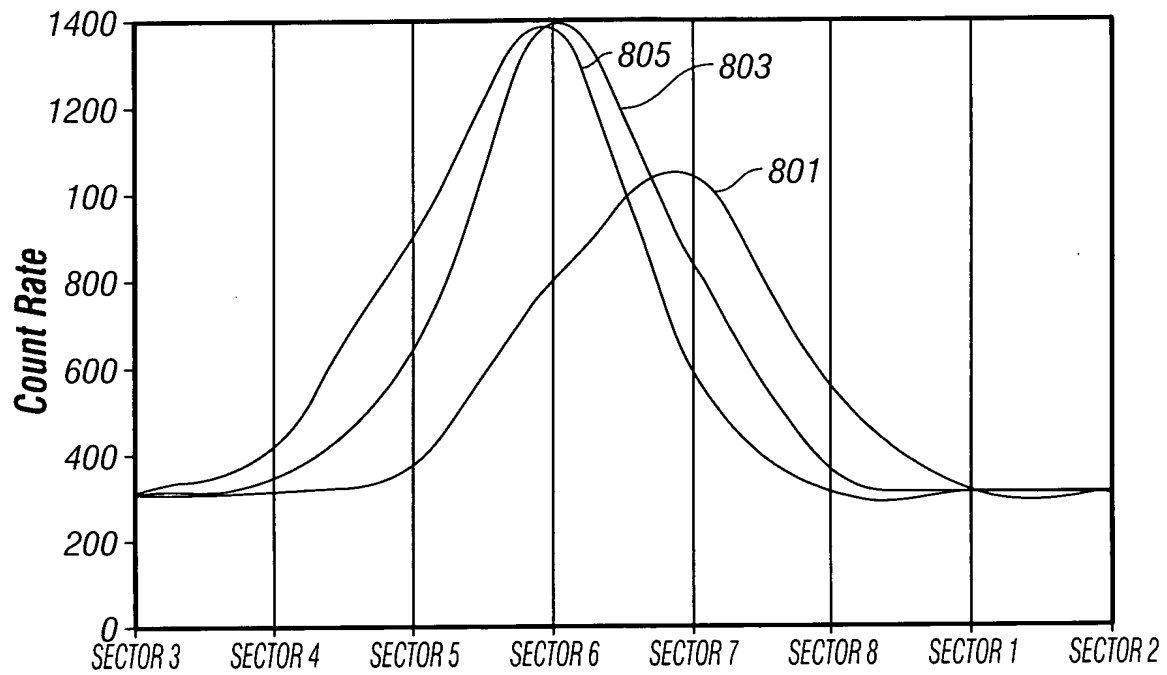


FIG. 14

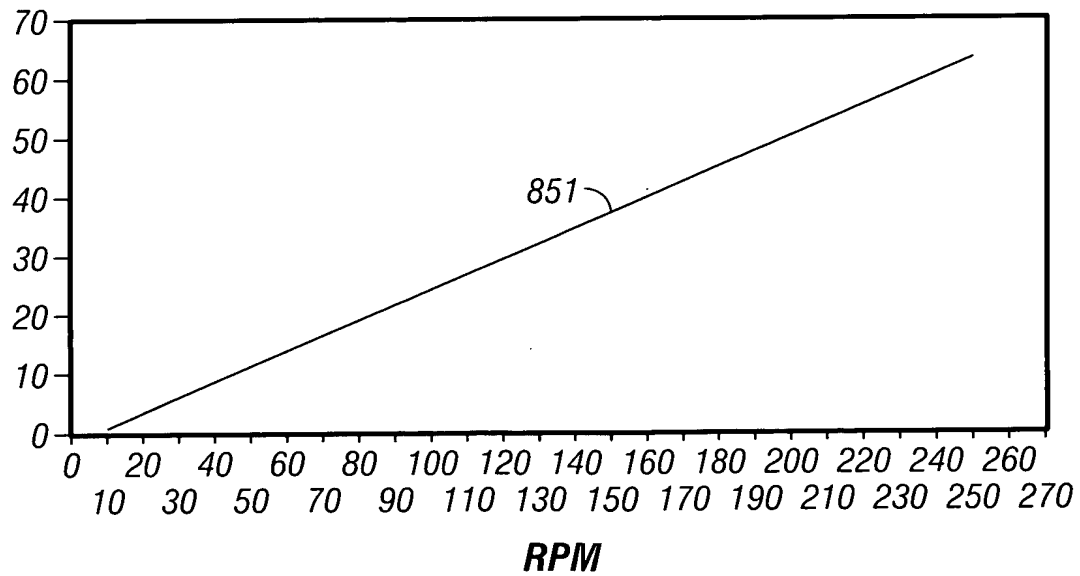


FIG. 15

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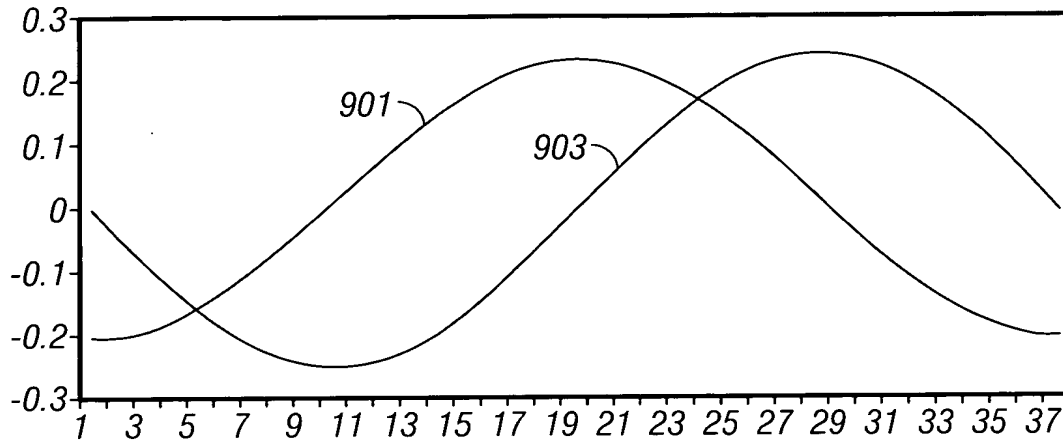


FIG. 16A

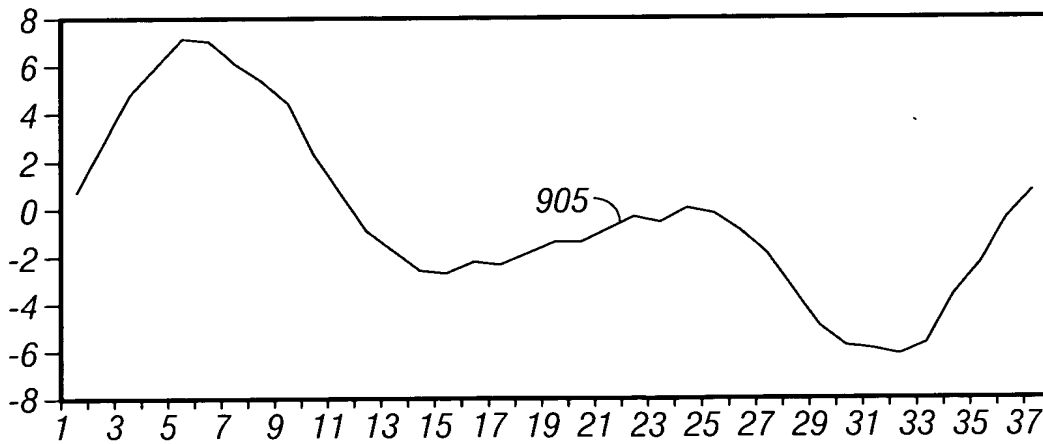
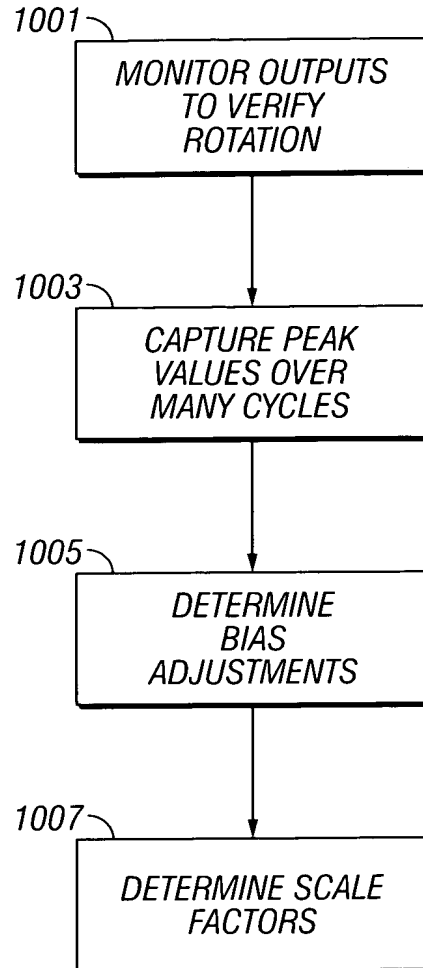


FIG. 16B

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**FIG. 17**

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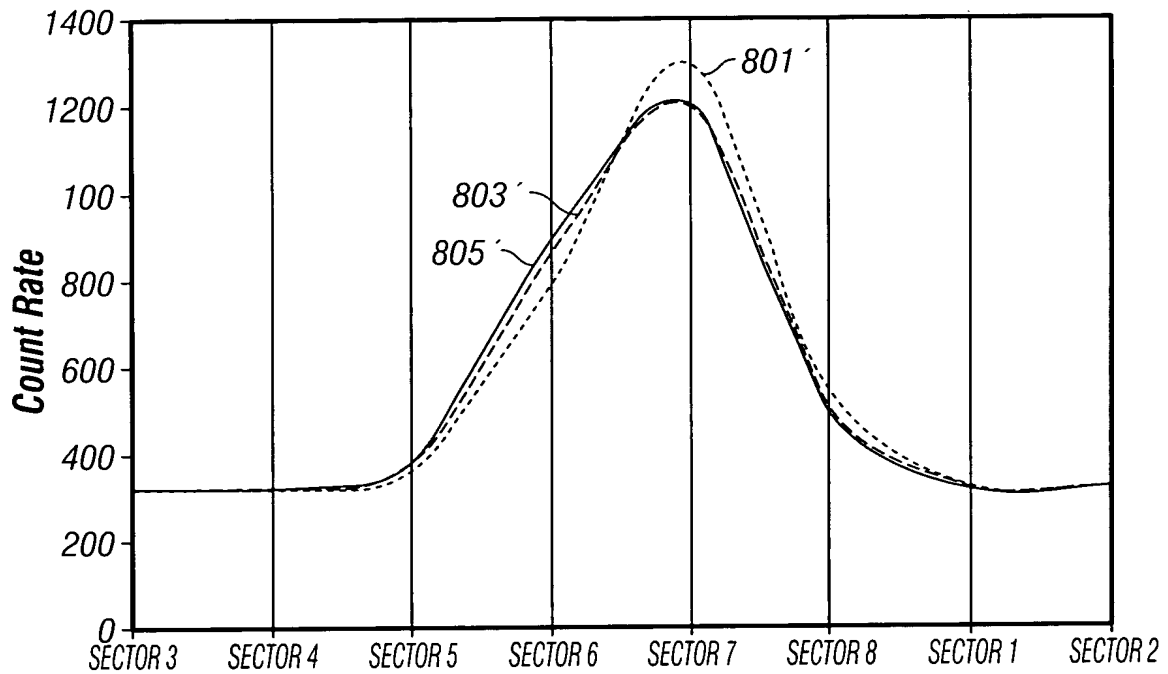


FIG. 18

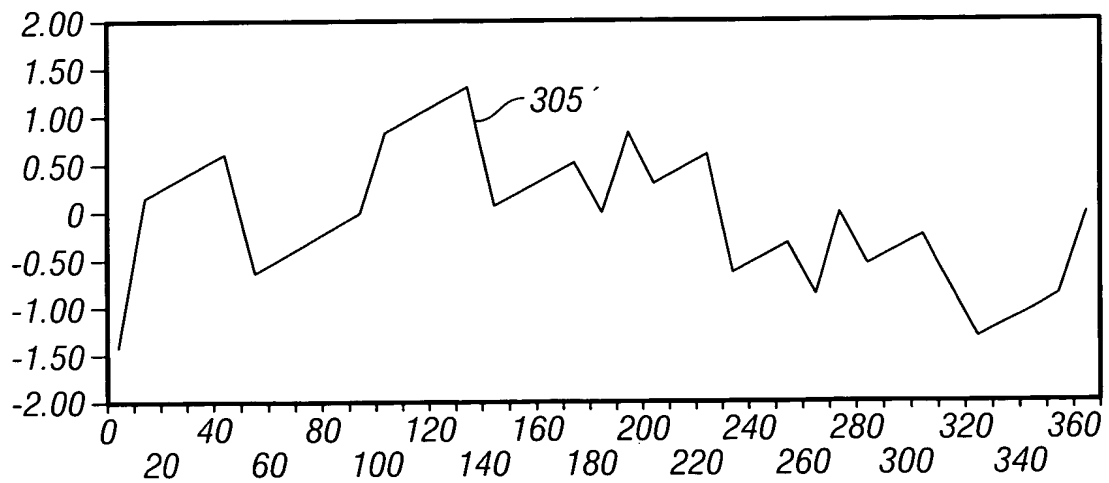
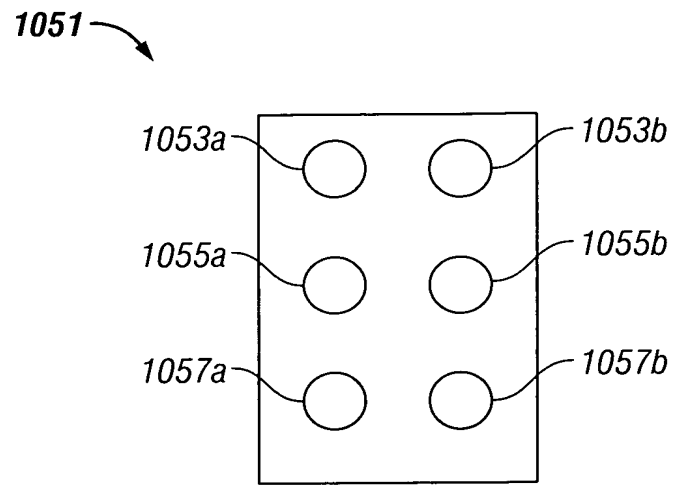
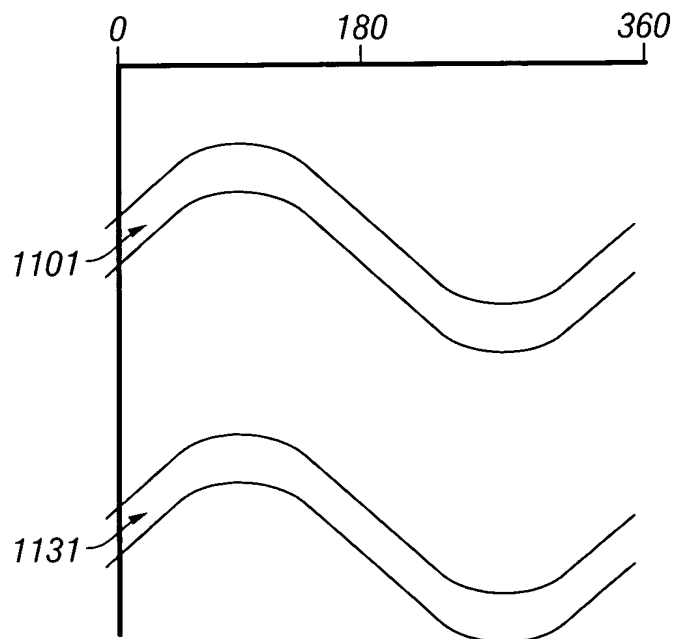


FIG. 19

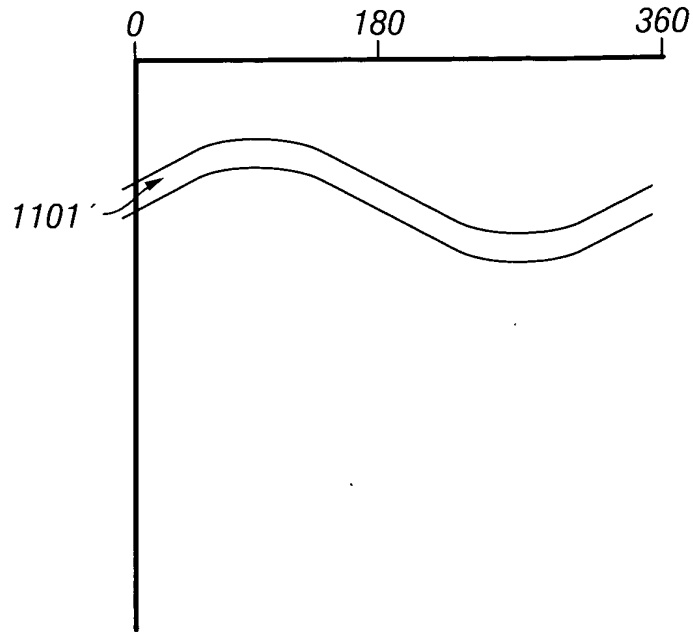
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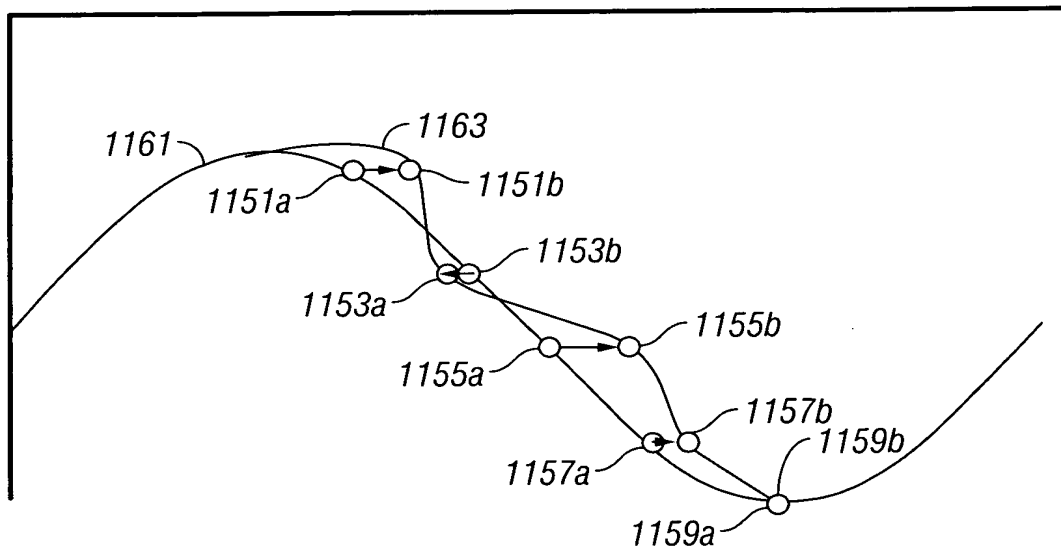
**FIG. 20**  
**(Prior Art)**



**FIG. 21**



**FIG. 21**



**FIG. 23**

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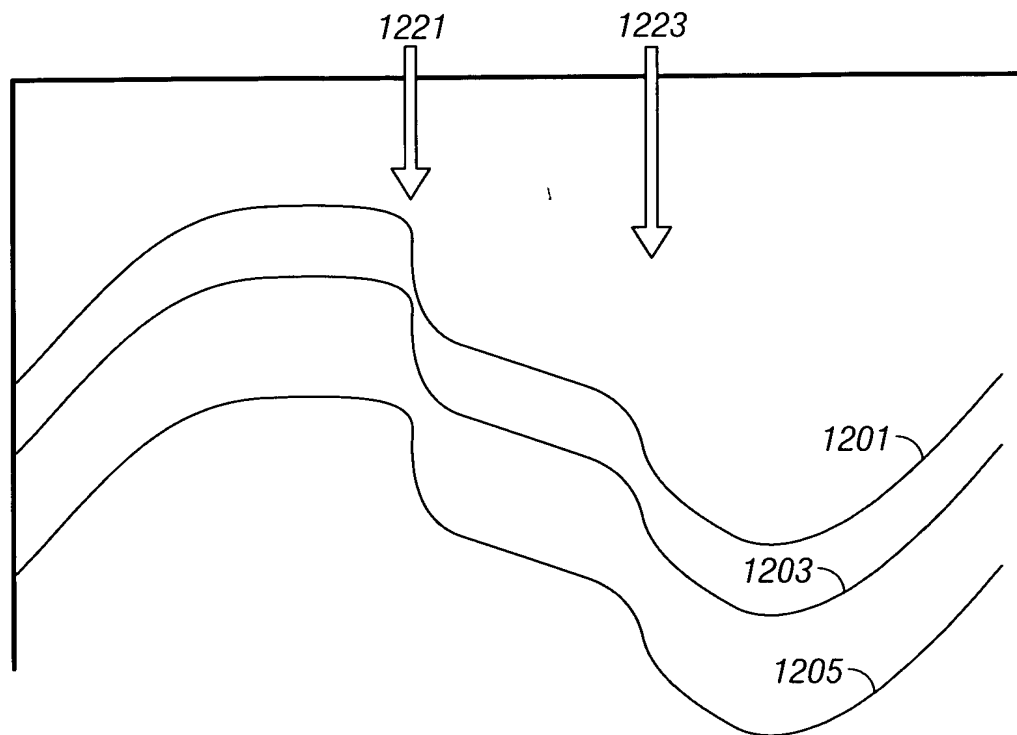


FIG. 24

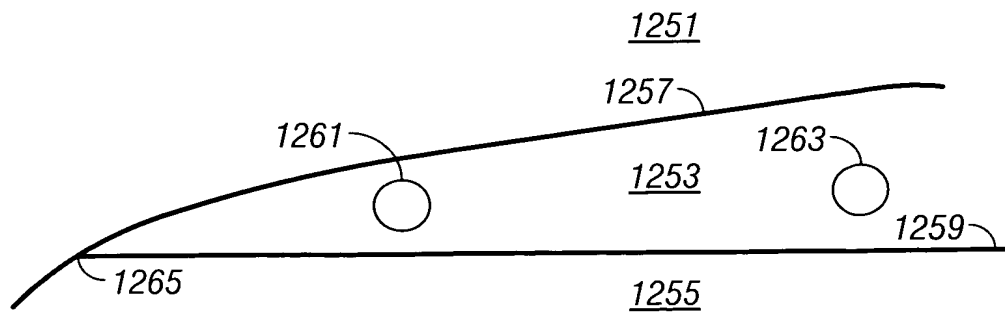
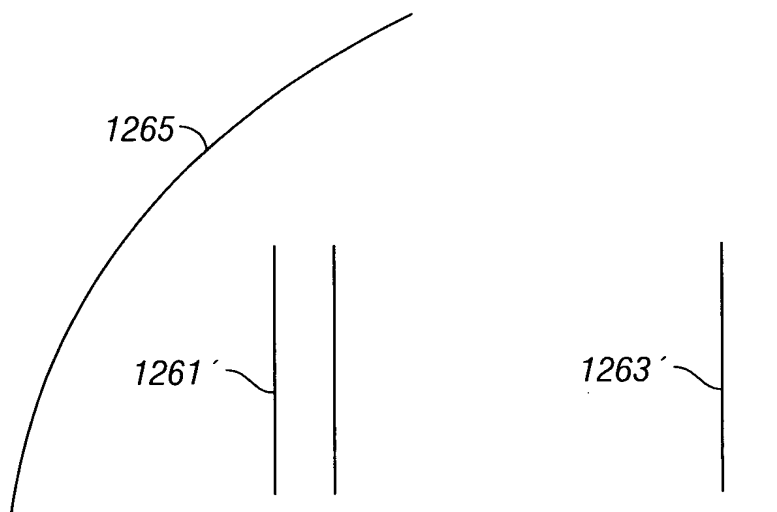


FIG. 25

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**FIG. 25B**